

Roll No.

Total No. of Questions : 17

Total No. of Pages : 02

MBA/MBA(IB) (2018 Batch) (Sem.-2)
BUSINESS ANALYTICS FOR DECISION MAKING
 Subject Code : MBA-201-18
 M.Code : 76153
 Date of Examination : 01-07-22

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

- SECTION-A contains EIGHT questions carrying TWO marks each and students has to attempt ALL questions.
- SECTION-B consists of FOUR Subsections : Units-I, II, III & IV. Each Subsection contains TWO questions each carrying EIGHT marks each and student has to attempt any ONE question from each Subsection.
- SECTION-C is COMPULSORY and consists of ONE Case Study carrying TWELVE marks.

SECTION-A

Answer the following questions in 2-3 lines :

- Data vs. Information
- Sampling
- Hypothesis
- Level of Confidence
- Correlation
- Business Forecasting
- Deflation
- Non-linearity

SECTION B

UNIT - I

- What is primary data? Write a detailed note on salient features of a good questionnaire for collecting primary data.

- Differentiate between probability and non-probability sampling methods. Discuss in detail the various probability sampling methods.

UNIT II

- What is null and alternate hypothesis? Write a detailed note on the process of formulation and testing of hypothesis.
- A survey indicates that 41% of American women consider reading as their favorite leisure time activity. You randomly select four women and ask them if reading is their favorite leisure- time activity. Find the probability that (a) exactly two of them respond yes (b) at least two of them respond yes and (c) fewer than two of them respond yes.

UNIT III

- From the following information, you are required to compute the impact of change in area on house prices by using regression analysis.

House Price in Rs. Lakh	245	312	279	308	199	219	405	324	319	255
Area (Square Feet)	1400	1600	1700	1875	1100	1550	2350	2450	1425	1700

- What is business forecasting? Write a detailed note on the various methods of business forecasting.

UNIT IV

- Define index numbers. Write a detailed note on the various methods of constructing index numbers alongwith their applicability with suitable examples.
- Write a detailed note on the features and methods of time series analysis.

SECTION C

17. Case Study:

The Acme Company has developed a new battery. The engineer in charge claims that the new battery will operate continuously for at least 7 minutes longer than the old battery. To test the claim, the company selects a simple random sample of 100 new batteries and 100 old batteries. The old batteries run continuously for 190 minutes with a standard deviation of 20 minutes; the new batteries, 200 minutes with a standard deviation of 40 minutes.

Test the engineer's claim that the new batteries run at least 7 minutes longer than the old. Use a 5% level of significance.

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SECTION-A

Answer the following questions in 2-3 lines :

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- Sampling
- Hypothesis
- Level of Confidence
- Correlation
- Business Forecasting
- Deflation
- Non-linearity

SECTION B**UNIT - I**

- What is primary data? Write a detailed note on salient features of a good questionnaire for collecting primary data.

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UNIT IV

- Define index numbers. Write a detailed note on the various methods of constructing index numbers alongwith their applicability with suitable examples.
- Write a detailed note on the features and methods of time series analysis.

SECTION C**17. Case Study:**

The Acme Company has developed a new battery. The engineer in charge claims that the new battery will operate continuously for at least 7 minutes longer than the old battery. To test the claim, the company selects a simple random sample of 100 new batteries and 100 old batteries. The old batteries run continuously for 190 minutes with a standard deviation of 20 minutes; the new batteries, 200 minutes with a standard deviation of 40 minutes.

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MBA/ MBA(IB) (Sem.-2)
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Subject Code : MBA-201-18

M.Code : 76153

Date of Examination : 06-12-2023

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3. SECTION-C is COMPULSORY and consists of ONE Compulsory question carrying TWELVE marks.

SECTION-A

Answer briefly :

1. Statistics
2. Census
3. Standard Error
4. Null Hypothesis
5. Multicollinearity
6. Regression
7. Splicing
8. Trend Analysis.

SECTION-B

UNIT-I

9. "Statistics is an art and science of collecting, classifying and processing data for extracting useful information for policy decision making". Elucidate with suitable examples.



(532)- 1222

10. What is sampling? Write a detailed note on various probability and non-probability sampling methods.

UNIT-II

11. What is hypothesis testing? Write a detailed note on the process of hypothesis testing.
12. Given a normal distribution of values for which the mean is 70 and standard deviation is 4.5, you are required to find:
 - a) the probability that value is between 65 and 80.
 - b) the probability and value is greater than 75.
 - c) the probability that value is less than 62.

UNIT-III

13. From the following information, you are required to compute the correlation between house prices and area of the house:

House Price in (Rs.) Lakh	245	312	279	308	199	219	405	324	319	255
Area (Square Feet)	1400	1600	1700	1875	1100	1550	2350	2450	1425	1700

14. Define forecasting. Discuss in detail the steps in business forecasting. Briefly discuss various methods of business forecasting.

UNIT-IV

15. What are index numbers? Discuss in detail various methods of constructing index numbers.
16. What is linear and non-linear time series analysis? Write a detailed note with suitable examples on the application and significance of time series analysis in business decision making.

SECTION-C

17. It has been found that the duration of a particular project is normally distributed with the mean of 12 days and standard deviation of 3. You are required to find the probability that the project will be completed in 15 days. (Corresponding value of Z in the table at Z= 1 is 0.3413, at Z=2 is 0.4772, at Z=3 is 0.4986).

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Total No. of Questions : 10

Total No. of Pages : 03

MBA (Sem.-2)

BUSINESS ANALYTICS FOR DECISION MAKING

Subject Code : MBA/201/18

M.Code : 76153

Date of Examination: 14-05-2024

Time : 3 Hrs.

Max. Marks : 60

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3. SECTION-C is COMPULSORY and consists of ONE Case Study carrying TWELVE marks.

SECTION-A

1. Answer the following questions in 2-3 lines :
- What is meant by Inferential Statistics?
 - What are the different types of classification?
 - What is the null hypothesis?
 - What is a Type-I error?
 - What is Multiple Regression?
 - What is Auto Correlation?
 - What are Index numbers?
 - What are linear equations?

SECTION-B

UNIT-I

2. Discuss the need and applications of inferential statistics in business. Explain by citing examples
3. Write notes on :
 - a) Applications and limitations of probability methods of sampling
 - b) Relationship between sample size and errors

UNIT-II

4. Discuss the need and relevance of the hypothesis in statistical analysis. Explain by citing examples.
5. Write notes on :
 - a) Applications of F-test
 - b) Applications of ANOVA

UNIT-III

6. Discuss the role and applications of forecasting in business. Explain by citing examples.
7. **Write notes on :**
 - a) Assumptions of regression
 - b) Methods of forecasting

UNIT-IV

8. Discuss the importance of Index numbers in managerial decision-making Explain by citing examples
9. **Write notes on :**
 - a) Test of consistency in index numbers
 - b) Least square method

SECTION-C

10. The three samples below have been obtained from normal populations with equal variances. Test the hypothesis that the sample means are equal

8	7	12
10	5	9
7	10	13
14	9	12
11	9	14

The table values of F at 5 % level of significance for Degrees of freedom₁ = 2, Degrees of freedom₂ = 12 is 3.88

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MBA/MBA(IB) (Sem.-2)
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Date of Examination: 11-01-2025

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SECTION-A

I. Write a short note on the following :

- a) Primary Data
- b) Frequency Distribution
- c) Quota Sampling
- d) Standard Error
- e) Level of Significance
- f) Business Forecasting
- g) Base Shifting
- h) Linear Equation.

SECTION-B

UNIT-I

2. Differentiate between Census and Sampling. Elaborate all Probability Sampling Techniques
3. Out of Total Number of 2807 women, who were interviewed for employment in a textile factory, 912 were from textile areas and the rest from non-textile areas. Amongst the married women, who belonged to textile areas, 347 were having some experience and 173 did not have experience, while for non-textile areas the corresponding figures were 19 and 670 respectively. The total Number of women having no experience was 1841 of whom 311 reside in textile areas. Of the total number of women, 1418 were unmarried and of these the number of women having experience in the textile and non-textile areas was 254 and 16 respectively. Tabulate the above information.

UNIT-II

4. What is Sampling Distribution? Elaborate different types of Sampling Distributions
5. A Stenographer claims that she can dictate at the rate of 120 words per minute. Can we reject her claim on the basis of 100 trials in which she demonstrates a mean of 116 words with a standard deviation of 15 words? Use 5% level of significance. (Tabulated Value = 2.67)

UNIT-III

6. What do you mean by Multiple Regression Analysis? How to test the assumptions of Regression?
7. Define Simple, Partial and Multiple Correlation Coefficients. Explain them with suitable examples

UNIT-IV

8. "For constructing Index numbers, the best method on theoretical ground is not the best method from practical point of view." Discuss.
9. From the following series of annual Data, find the trend line by the method of Semi-Average and Least Square Method. Also estimate the value of 1999

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Actual Value	170	231	261	267	278	302	299	298	340	*

SECTION-C

10 Case Study :

FoodCo is a regional chain of grocery stores that has recently launched a customer satisfy- action survey to better understand shopper experiences and improve service. The survey includes various aspects such as product quality, pricing, store cleanliness, and staff friendliness. The company Conducted a Survey to analyze customer satisfaction and recommend actionable improvements. Following is the details of Survey Conducted and Data Analysis

- a) **Survey Design:** A structured questionnaire with Likert scale questions (1 to 5) on various factors (e.g., product quality, pricing, cleanliness)
- b) **Sample Size:** 1,000 respondents randomly selected from FoodCo's customer database
- c) **Demographics:** Age, gender, income level, and frequency of store visits

Data Analysis Techniques

- a) **Descriptive Statistics:** Calculate mean, median, mode, and standard deviation for each survey question, summarize demographic data to understand the respondent profile
- b) **Inferential Statistics:** T-tests Compare mean satisfaction scores between different demographic groups (e.g., age groups, income levels), **ANOVA** Assess whether there are significant differences in satisfaction scores across various store locations
- c) **Correlation Analysis:** Examine the relationship between overall satisfaction scores and specific factors (e.g., product quality vs. staff friendliness)
- d) **Regression Analysis:** Conduct a multiple regression analysis to determine which factors most significantly predict overall customer satisfaction

Results

- a) Overall satisfaction mean score: 4.2/5.
- b) Highest-rated factors: Staff friendliness (4.6) and product quality (4.5).
- c) Lowest-rated factor: Pricing (3.8)

- d) Significant differences in satisfaction based on Age (younger customers rated cleanliness higher than older customers)
- e) ANOVA indicated significant variations in satisfaction scores among different store locations
- f) Strong positive correlation between product quality and overall satisfaction ($r = 0.75$)
- g) Regression analysis identified product quality and staff friendliness as the strongest predictors of overall satisfaction ($p < 0.01$)

Discussion Questions :

- a) What additional survey questions could help provide more insights into customer preferences?
- b) How can FoodCo ensure a more representative sample in future surveys?
- c) What statistical methods could be employed to analyze changes in satisfaction over a period of time?

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